SECTION 02240

DEWATERING

PART 1 GENERAL

1.1 DESCRIPTION

A. Related Work Specified Elsewhere

Site Preparation	Section 02100

B. The work covered under this section shall include the construction dewatering for the installation and repair of the sanitary sewer mains, laterals, cleanouts, and manholes as shown on the Drawings.

1.2 PERFORMANCE REQUIREMENTS

A. Dewatering Performance: Design, provide, test, operate, monitor, and maintain a dewatering system of sufficient scope, size, and capacity to control ground-water flow into excavations and permit construction to proceed on dry, stable subgrades.

1. Work includes removing dewatering system when no longer needed.

2. Maintain dewatering operations to ensure erosion is controlled, stability of excavations and constructed slopes is maintained, and flooding of excavation and damage to structures are prevented.

3. Prevent surface water from entering excavations by grading, dikes, or other means.

4. Accomplish dewatering without damaging existing utilities or structures adjacent to excavation.

1.3 SUBMITTALS

A. Shop Drawings: For dewatering system. Show arrangement, locations, and details of wells and well points; locations of headers and discharge lines; and means of discharge and disposal of water.

1. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system where used.

2. Include a written report outlining control procedures to be adopted if dewatering problems arise.

3. Include Shop Drawings signed and sealed by the qualified professional engineer responsible for their preparation.

B. Field Test Reports: Before starting excavation, provide a submittal demonstrating that dewatering system is capable of meeting performance requirements.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer to assume engineering responsibility and perform dewatering who has specialized in installing dewatering systems similar to those required for this Project and with a record of successful in service performance.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the jurisdiction where the Project is located and who is experienced in providing engineering services for designing dewatering systems that are similar to those indicated for this Project in material, design, and extent.

1. Engineering Responsibility: Engage a qualified professional engineer to prepare or supervise the preparation of data for the dewatering system including drawings, testing program, test result interpretation, and comprehensive engineering analysis that shows the system's compliance with specified requirements.

C. Regulatory Requirements: Comply with water disposal requirements of Offutt Air Force Base and Nebraska Department of Environmental Quality. The Contractor shall apply for and obtain National Pollutant Discharge Elimination System (NPDES) permit for dewatering operations from Nebraska Department of Environmental Quality (402) 471-2186. Coordinate efforts with Civil Engineering Squadron.

D. Testing Requirements: Contractor shall perform and pay for all testing of the dewatering discharge in accordance with the NPDES permit requirements. Copies of all testing reports shall be forwarded directly to the Contracting Officer.

1.5 PROJECT CONDITIONS

A. Survey adjacent structures and improvements, employing a qualified professional engineer or surveyor, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

1. During dewatering, resurvey benchmarks weekly, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Contracting Officer if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork and dewatering operations.

1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.

2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

B. Install dewatering system to insure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Contracting Officer or designated representative. Provide alternate routes around closed or obstructed traffic ways if required.

3.2 DEWATERING

A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.

B. Before excavation below ground-water level, place system into operation to lower water to a level 24" below the excavation and then operate it continuously until drains, sewers, and structures have been constructed and fill materials have been placed, or until dewatering is no longer required.

C. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.

1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.

D. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.

1. Maintain piezometric water level a minimum of 24 inches below surface of excavation.

E. Dispose of water removed from excavations in a manner to avoid endangering public health, property, and portions of work under construction or completed. Dispose of water in accordance with NPDES permit requirements. Provide sumps, sedimentation tanks, and other flow-control devices as required. Care shall be taken so as not to overload existing sanitary or storm sewers.

F. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on a continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, immediately restore damaged structures and foundation soils at no additional expense.

1. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

G. Damages: Promptly repair damages to adjacent facilities caused by dewatering operations.

END OF SECTION